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▲ An Interdisciplinary Learning Experience Through Applied Clinical Practice with Community Volunteers

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ALLIED HEALTH PROFESSIONALS typically begin working on an interdisciplinary health care team immediately upon entering the workforce. Interdisciplinary health care teams are believed to be cost-effective, to result in better patient outcomes, and to lower staff burnout and turnover.¹⁻⁴ Although teamwork often is standard practice in the workplace, allied health students may receive little to no formal training in working with other professionals while in school.⁵ Instead, it may be assumed that this knowledge is inherent or that developing the skills necessary to work as part of a team while on clinical affiliation or postgraduation is acceptable.⁵

Opportunities to work on an interdisciplinary team while still in school result in clinicians who are more adept at collaborating in the workplace.⁶⁻⁸ The skills required to be effective in working on an interdisciplinary team are complex and diverse and may not be taught easily in a didactic setting. Allied health students require a basic understanding of the role and function of other disciplines on a health care team as well as their own to understand their relative contributions to patient care.^{2,9} Abandoning turf and boundary issues is essential for a health care team to be most effective. Students must learn to share their expertise without feeling threatened or experiencing a loss of their professional identity.³ Respect and appreciation of other disciplines is crucial so that students can participate in discourse without belittling the contributions of others. Respect and appreciation for others may be accomplished through teaching basic communication skills, such as con-

flict resolution, and encouraging students to minimize the use of professional jargon.²⁻³

Many examples of allied health interdisciplinary education exist in the literature, often on a continuum ranging from students from different disciplines attending the same class with little interaction to courses and projects that actively involve students in teamwork.⁸ Some allied health programs provide full interdisciplinary courses, often taught by a team of instructors, including seminars, laboratory experiences, and case studies.¹⁰⁻¹² A problem-based learning format, with a combination of case study and hands-on learning, is another popular way to incorporate interdisciplinary education into an allied health curriculum.¹³⁻¹⁵ Some allied health programs have developed specific laboratory or community experiences designed to place students from one or more disciplines together to learn clinical and professional skills. Richardson and Edwards¹⁶ described a clinical skills laboratory for occupational therapy (OT) and physical therapy (PT) students. Up to eight students were paired with one geriatric patient and an occupational or physical therapist facilitator. Students were required to help the patient learn several clinical skills, such as bed mobility and transfers, and were evaluated by the supervising therapist.¹⁶ Thomas et al¹⁷ structured opportunities for students from OT, PT, and speech therapy to evaluate well elders at a local senior center. This 9-week experience allowed students to work on an interdisciplinary team with actual patients.¹⁷

The literature supports creating interdisciplinary educational experiences to assist students in establishing the skills and behaviors needed to become competent clinicians.^{1-3,6,7,9} Opportunities that allow for more frequent interaction with patients and peers from different disciplines provide a more realistic learning environment.^{6,16,17} This article describes one such opportunity, the Applied Clinical Practice (ACP), involving PT and OT students who collaborated weekly for one semester to work with community volunteers. One goal for the ACP was to provide students an opportunity to apply didactic information regarding evaluation and treatment directly to a community volunteer with a neurologic diagnosis, while under faculty supervision. A second goal was to reinforce clinical

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reasoning, professional behaviors, and interdisciplinary teamwork.

Description of the Applied Clinical Practice

The Department of Physical and Occupational Therapy at Idaho State University implemented the ACP for students in the entry-level master's PT and OT programs during the 2002 spring semester. One focus of the Department of Physical and Occupational Therapy mission is to support *interdisciplinary education*, defined here as shared learning among multiple disciplines. Consequently, PT and OT faculty often seek out opportunities to collaborate in teaching and clinical work. The ACP was designed to improve interdisciplinary student collaboration and understanding.

Students in the PT and OT programs at Idaho State University typically are in their mid-20s, married with children, and working toward their second career. Based on this non-traditional student body, the development of the ACP was guided by andragogy, or the facilitation of adult learning.¹⁸ The primary principles of andragogy include student-directed, problem-based learning within a realistic context.¹⁸

All students who participated in the ACP were in their second year of 3-year programs and previously had taken courses together. Only PT and OT students were included in the ACP because of their proximity in educational programs and the previous collaborative efforts of the faculty. At this point in the curriculum, the PT students had more patient contact than the OT students, but otherwise the students were similar in level of education. The students were enrolled in separate, discipline-specific neurologic rehabilitation courses that came together once a week for the ACP. The PT and the OT neurologic rehabilitation courses addressed pathology and evaluation and treatment techniques used for neurologic diagnoses, including cerebrovascular accident, spinal cord injury, and traumatic brain injury.

Community volunteers with neurologic diagnoses were solicited to participate in the ACP. Some of the volunteers had participated during past years, whereas others were new and had been referred by the local hospital or word of mouth. One faculty member screened all community volunteers before beginning the experience to ensure overall appropriateness. The diagnoses of the volunteers included cerebrovascular accident, traumatic brain injury, cerebral palsy, Parkinson's disease, and brain tumor excision. None were receiving PT or OT services at the time they began participation, although one did begin outpatient PT later in the semester. All volunteers had been diagnosed with a neurologic condition for greater than 1 year (range 16 months to 66 years) and were not experiencing any changes in their neurologic function. The volunteers all were community dwellers and were able to participate in basic self-care and community activities either independently or with assistance from caregivers. The volunteers were informed that the primary purpose of the experience was for students

to apply what they were learning in class, as opposed to providing therapy. Although students attempted to address their volunteer's individual needs as much as possible, it was important that volunteers understood they might not experience significant improvements in function. All volunteers signed consent forms to indicate their understanding of the purpose of the experience.

Nine volunteers each were assigned to work with an OT/PT student pair. Because of differences in class size, four additional volunteers worked only with PT student pairs or an individual PT student. A total of 9 OT students, 15 PT students, and 13 volunteers participated in the ACP. The community volunteers worked with the same pair of students for 1.5 hours per week for 12 sessions. Limited space required the use of two laboratories in different buildings, with one PT and one OT faculty member present at each. The three primary course instructors provided most of the supervision, but additional PT and OT faculty members provided coverage when needed. All faculty supervisors were encouraged to answer questions as needed and to promote safe practice, while allowing students to direct the session.

Student pairs met each week before working with their volunteer to plan the upcoming treatment session. Faculty members were available during these planning sessions to aid in problem solving and critical thinking, but student pairs were responsible for directing their own learning.¹⁸ If student pairs required additional information about a specific treatment technique or diagnosis, they needed to seek out that information independently through a literature search, discussions with faculty members, or other appropriate means.

Students were expected to work as a team during treatment and not merely split their allotted time into separate OT and PT sessions. The faculty preferred that students design one treatment activity that addressed OT and PT goals, rather than each student working with the volunteer for half the time on separate tasks. Working as a team during treatment sessions with the volunteer mimicked actual OT/PT cotreatment that frequently occurs in rehabilitation settings, which often is considered to be cost-effective and time-effective.⁸

During the first two sessions with the volunteer, the students performed a joint initial evaluation. Students were not given a specific evaluation format to follow but were expected to evaluate only areas of deficit pertinent to their volunteer. This evaluation required clinical reasoning and cooperation between the PT/OT student pairs to identify and agree on the deficits and course of treatment. The student pairs documented their evaluation results and presented the results verbally as a team in rounds. Rounds presentations highlighted each case in a format similar to patient reviews that take place regularly in some medical settings. Subsequent treatment sessions were documented separately. Documentation was reviewed and cosigned by faculty and was available for student review throughout the semester. During the last session, a joint final evaluation

was performed and documented together and presented verbally in rounds. These presentations were used to share new knowledge with classmates and to promote reflective practice through the analysis and consolidation of evaluation and treatment findings.^{11,14}

At the end of the semester, all students were asked to complete an evaluation form containing open-ended questions about their experience in the ACP. The students were asked about their knowledge of the role of PT and OT, the effectiveness of treating as a team, the positive and negative aspects of the experience, and suggestions for future improvement of the ACP. One PT ACP faculty member compiled the comments and created major categories of strengths and weaknesses cited by the students.

Summary of Student Feedback

Student evaluation of the ACP revealed that although there were multiple benefits of working on an interdisciplinary team, some common misconceptions of PT and OT either were created or were reinforced. In general, students were able to describe accurately the role of their own discipline, but responses regarding the other discipline indicated a consistently stereotyped view of their roles and functions. PT students reported that OTs tend to focus only on activities of daily living, vision, cognition, and splinting, whereas OT students reported that PTs tend to work primarily with the lower extremity, gait, stretching, strengthening, and assigning exercise programs. Although some of these responses were accurate, they failed to describe fully the richness of either profession. PT students who were not paired with an OT student did not complete questions on the evaluation form related to OT. This situation may indicate a lack of learning about OT despite being exposed to multiple rounds presentations within the ACP that highlighted issues related to both disciplines and previous exposure to OT through other combined classes in the curriculum.

The student evaluations revealed some discontent with the level of respect shown between the two disciplines. Most of the OT students commented that the PT students needed to learn to value and respect OT before their participation in the ACP. The PT students did not make similar remarks regarding the OT students. The literature on interdisciplinary teamwork consistently described a similar issue of decreased valuing by one profession over another, resulting in students who do not fully understand and appreciate the role of other professions and do not work effectively on an interdisciplinary team.^{1-3,6,9,19} Despite this imbalance of respect, many students participating in the ACP also reported that they (1) enjoyed working with a classmate, (2) appreciated having assistance to generate new ideas, and (3) learned that it is possible for PTs and OTs to work well together. Some negative student evaluation comments focused on (1) frustration regarding sharing the treatment time, (2) partners with conflicting personalities, and (3) the lack of progress made by the community volunteer.

Students suggested that, in the future, the neurologic rehabilitation courses should review the roles of OT and PT before the ACP. Students participated in several combined OT/PT classes during their first year of the curriculum, some of which included education regarding the role of each profession. Students overall did not believe, however, that enough time was spent preparing them to understand the scope and function of the other discipline. Consequently, it may be beneficial to implement a classroom experience addressing the roles of different disciplines shortly before beginning the ACP.

Community Volunteer and Faculty Feedback

The community volunteers who participated in the ACP were not asked to complete formal summative evaluations, which is a component that may be added in the future. The volunteers did provide anecdotal feedback, however, to the students and faculty. Volunteers stated they enjoyed participation in the ACP because it helped the students to learn, and the experience was a fun and social weekly event. Some volunteers also expressed that they hoped participation would improve or maintain their level of function, although they understood that was not the primary focus of the ACP. All of the volunteers who had returned from the previous year or who were new to the experience requested to return for the following year. This fact provided the faculty with a strong indication that the volunteers' experiences had been positive, and it explained further their willingness to commit to the semester-long program.

The ACP faculty evaluated the experience at the end of the semester through multiple discussions about the benefits and challenges of the ACP. All of the faculty believed the ACP was valuable because it promoted student responsibility and autonomy in clinical decision making, which was difficult to foster in a didactic setting. All faculty noted growth and confidence in the students' evaluation and documentation skills, treatment planning, and ability to interact effectively with the volunteers.

Benefits of the Applied Clinical Practice

The community volunteers and the students benefited from participation in the ACP. Three of the volunteers showed some improved function, which may not have occurred without their participation in the ACP. Students were encouraged to make the most of the ACP, and six pairs opted to expand their experience by scheduling home and work site evaluations, a ranch/horseback riding observation, and pool exercise program instruction. Students also opted to work with health care professionals other than PTs and OTs. One pair referred the community volunteer back to the physician with the recommendation for an orthosis, and two pairs contacted a pharmacist with concerns about a medication the volunteer was taking.

The students benefited by working with a person with a neurologic diagnosis. This exposure provided students with

a better understanding of the typical impairments and progression of neurologic patients several years postdiagnosis.^{13,16,17} Another benefit for the students was the opportunity to interact with caregivers, which provided them with insight into the challenges caregivers often face. In some instances, students practiced interpersonal and communication skills to address the concerns of the volunteer and the caregiver, particularly when their goals differed. Finally, student evaluations and faculty observation revealed that working as part of an interdisciplinary pairing allowed students to learn about the other discipline, define better their own role and scope, and practice communication skills such as conflict resolution. These conclusions were consistent with findings in the literature.^{5,6,9,13,14,16,17}

Challenges of the Applied Clinical Practice

Logistics proved to be one of the main challenges of successfully running the ACP. Faculty support, space and equipment availability, and establishing meeting times that worked for all the students and faculty members were some of the initial issues that had to be addressed and are factors that have been identified previously in the literature.^{1-3,5,19} These logistical issues required that OT and PT faculty communicate with one another frequently and openly to avoid conflicts.

A large amount of meeting time between students and faculty members was necessary during the semester, which had not been anticipated fully before beginning the ACP. The OT and PT faculty members discovered that class time immediately after the ACP was needed for discipline-specific questions and treatment planning and to address conflicts between PT/OT pairs. In addition, PT and OT faculty members met on average once a week to troubleshoot issues of teamwork and logistics. These meetings lessened as the semester progressed and the students became more comfortable in their working relationships.

Locating appropriate community volunteers was a challenging task, particularly in a town with a population of only 50,000 people. Volunteers needed to have a neurologic diagnosis and preferably not be receiving PT or OT services currently. Volunteers also needed to be willing, able, and reliable to participate for 12 weeks. Other factors that were considered for participation included living in the community as opposed to an institution and having some disability that ideally could benefit from OT and PT services. In some instances, however, the volunteer was more appropriate for OT than PT, or vice versa, and as a result some student pairs struggled to cotreat their individual. In the future, predetermined criteria during the initial screening by faculty members could provide an objective mechanism to ensure volunteers provide an educational opportunity for a PT and an OT student.

Overall the PT/OT pairs worked well together, but conflicts arose during the semester. Because the students had different levels of experience in treating patients, there was

some frustration and differences in confidence level that affected the working relationship. The impact of different levels of experience on interdisciplinary communication has been documented frequently in the literature.^{1,3,5,6,19} Students with more hands-on experience with patients felt more comfortable in leading the treatment sessions, with the other student merely observing. Students were expected to educate one another on their role and scope, which for some pairs was especially challenging if their volunteer seemed to need one service more than the other. This situation left one student struggling to determine how to meet the volunteer's needs best, with the other thinking he or she was not benefiting from working with another discipline. Conflicts such as these often were raised during discipline-specific class time and gave students a chance to brainstorm possible actions with their peers. Students were expected to communicate directly with their partner first and ask faculty members to intervene only if unable to resolve the conflict.

Future Directions of the Applied Clinical Practice

The inclusion of students from other allied health programs could become an organized component of the ACP. OT and PT students involved in the ACP could make referrals to students from other disciplines. Potential referrals may include an evaluation by a physician assistant student, a medication review by a pharmacy student, a nutritional consultation by a dietitian student, or an examination and treatment by a speech pathology student to address language dysfunction. To make an appropriate referral, students would need to research the role and function of the other discipline and communicate clearly the need for the referral.^{2,3} The students could observe the resulting interaction between the other student and the community volunteer.

A second way to incorporate additional disciplines is by expanding the ACP beyond OT/PT student pairs. The addition of other allied health students would increase the overall services provided to the community volunteers and provide an additional opportunity for students to practice working as part of an interdisciplinary team. A full team rounds presentation could be scheduled in which students from each discipline present and discuss results together. Adding additional disciplines would increase the complexity of the ACP, however, and would require further planning and cooperation between faculty.

Conclusion

The ACP was designed to promote student-directed learning with multiple opportunities for clinical reasoning, application of skills and professional behaviors, and interdisciplinary teamwork. Working with one volunteer over an extended time allowed students to translate their basic clinical skills into clinical reasoning and application to a

real situation. In addition, students were expected to perform at a high level of professionalism, including their interactions with the volunteer and with their partner. Providing a structured opportunity for students to work as part of an interdisciplinary team, in a format similar to some medical settings, may be an effective way to prepare them for clinical practice.

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